

# Facts in Fiction: Introducing Cartography and Surveying in Martin Suter's Novel „Die Zeit, die Zeit“

Lorenz Hurni, Julia Burgermeister

ETH Zurich, Institute of Cartography and Geoinformation, Wolfgang-Pauli-Strasse 15, 8093 Zurich, Switzerland

**Abstract.** Swiss best-selling author Martin Suter published his latest novel “Die Zeit, die Zeit” (“Time, time”) in 2012. It is set up around two main actors, who would like to turn back time to a specific moment by re-establishing the spatial situation of a specific place. To achieve this, they need to use methods to survey the neighborhood in its current and its historic states. This paper describes which methods are used and how they are described in the novel. Furthermore the final text of the novel is analyzed in order to find out to what extent the imaginary landscape of the novel can be (re-)mapped again.

**Keywords:** Literary cartography, surveying, mapping, map projections, map transformations.

## 1. Introduction

In September 2012, Swiss best-selling author Martin Suter („Smallworld“, „Lila, Lila“, „Business Class“) published his latest novel “Die Zeit, die Zeit” (“Time, time”; in German, currently no translation available (Suter, 2012)). *Figure 1* shows the announcement of the novel by the publisher.

Martin Suter (born 1948) is currently the best-selling Swiss author. Suter was first working as Creative Director for several advertising agencies, but soon started writing reportages and columns, e.g. his famous column Business class, about archetypical behavior of business men. He wrote several film scenarios. In 1997 he wrote his first novel “Smallworld” about an Alzheimer disease patient, which became immediately successful. “Die Zeit, die Zeit” (“Time, time”), published in 2012, is Suter's 10<sup>th</sup> novel.



**Figure 1.** Announcement of the novel by the publisher (Diogenes Verlag, Zurich).

The story of “Die Zeit, die Zeit” is set up around two main actors, Taler and Knupp, who are neighbors across the street in an average suburban town in Switzerland. Both of them have lost their spouses some years before and they are longing for them. Knupp develops a somewhat exotic theory that instead of time only changes exist. Time could therefore be turned back to a specific moment by “simply” re-establishing the spatial situation of a specific place. Taler and Knupp therefore start to re-create their houses, gardens and the street in between in the exact same manner as they were twenty years before.

Of course, this imposes a major challenge not only to the two main actors, but also to the author. Martin Suter therefore contacted one of the authors of this ICC paper in spring 2012 in order to evaluate possible surveying and mapping methods to fulfill this demanding task. Suter set up several boundary conditions, such as the presence of old analogous Leica photography depicting the house and the garden of Knupp in its old state, or the use of an old theodolite for surveying purposes. After intensive discussions between author and consultant, it was decided to set up a threefold workflow (next chapter). Furthermore, the choice of classical surveying methods was considered more tangible than virtual computer-based methods and therefore better describable and interesting to the reader.

## 2. Recreating the Historical Situation

### 2.1. Classical Surveying by Traverse and Detailed Surveying

During the first discussions with the author, it was decided that the main actors should first carry out a classical survey of the gardens and buildings

in the neighborhood. Suter had a specific settlement type in mind which is typical for many Swiss residential areas (*Figure 2*).



**Figure 2.** Settlement type in Suter's novel (courtesy of the author).

First task was therefore to set up a number of bench mark points in order to set up traverse measurements using a classical theodolite. In Switzerland, such official surveying points are available in almost every street. However, to do detailed surveying in the backyards, additional traverse points needed to be set up by the main actors. In the novel, this activity is described as follows (in German, © Martin Suter and Diogenes Verlag, Zurich):

*Den Nachbarn des Gustav-Rautner-Wegs bot sich an diesem Sonntagmorgen ein seltsames Bild: Der eigenbrötlerische alte Knupp hantierte zittrig und umständlich mit einem antiken Theodoliten, unbeholfen assistiert von dem menschenscheuen jungen Witwer aus dem Haus gegenüber. (...) [Knupp and Thaler act as land surveyors, using an old theodolite.]*

*Albert Knupp hatte sich für sein großes Projekt einen alten Theodoliten beschafft und sich das nötige vermessungstechnische Grundwissen selbst angeeignet. Er stand über das Gerät gebeugt, guckte durch das Zielfernrohr und dirigierte seinen Gehilfen mit gebieterischen Gesten herum. Ein wenig weiter links, ein bisschen nach rechts, einen Schritt zurück. [Working with the theodolite.]*

*Er hatte Taler Sinn und Ziel der Aufgabe erklärt, wie ein pädagogisch fortschrittlicher Offizier seinen Soldaten eine Übung. Es ging darum, „an die bestehenden Polygonpunkte anzuschliessen, um neue Fixpunkte im Garten zu bestimme“. [Measuring the traverse.]*

*Für Taler war das Unangenehme an dieser Arbeit, dass sich diese amtlichen Messpunkte auf der Straße befanden, und er mit Knupp das Stativ samt Theodolit über diesen millime-*

*tergenau zentrieren und horizontieren musste. Allein diese Arbeit kostete den tatterigen Geometer und seinen unerfahrenen Gehilfen über eine halbe Stunde. [Calibrating the theodolite.]*

*Talers Hoffnung, nicht dabei beobachtet zu werden, wurde durch den Hauswart Gelphart zunichte gemacht, den Mann seiner schwatzhaften Putzfrau. Er stand plötzlich hinter ihnen und fragte: „Was vermessen Sie da?“ In einem Tonfall, als sei Vermessen ein schwerwiegender Verstoß gegen die Hausordnung. [The janitor arrives. „What are you doing here?“]*

*„Polygonzug“, brummte Knupp. [„Traverse measuring.“]*

*Gelphart gab sich keine Blöße und antwortete ebenso fachmännisch: „Dachte ich mir.“ [“That’s what I thought.”]*

Suter on one hand describes the surveying method rather straight forward, detailed and as explained to him by the consultant. On the other hand he enriches the action by describing the mood of the surveyors, for instance their sense of shame towards the neighbors when surveying the area on a Sunday morning. The final product was a large scale plan of the garden and the buildings drawn on a millimeter paper.

## **2.2. Projection of Old Photos Using a Camera Obscura**

Knupp has a large number of Leica photos of his garden available which were taken 20 years before. The author had the idea to extract the historical situation out of these images. The 3D reconstruction of an area out of images is usually a rather complex process and requires photogrammetric methods and specific software. For the novel, complex techniques should be avoided, as explained earlier. The author and the consultant therefore developed a method using a classical *Camera obscura*. Assuming that the garden was a flat place one could project the image through a pinhole camera onto the ground plan compiled in the garden by classical surveying. By rotating and tilting the negative, the still existing objects on the ground could be matched (projective transformation or collineation, *Figure 3*). The old, disappeared objects could then be drawn from the picture onto the plan. Again, Suter describes this method in a straight forward manner, enriching the action by the pain of perfectly matching the two images:

*Taler stand in der Finsternis des Dunkelkammervorraums. Die einzige Helligkeit kam von dem Licht, das durch das Negativ fiel. Es war zwischen zwei Gläser geklemmt und steckte in einer vierundzwanzig mal sechsunddreißig Millimeter kleinen Öffnung in einem vier-eckigen Kasten. [Description of dark room with holding device for film negative.]*

*Dieser war am Ende eines nach allen Seiten schwenkbaren Arms angeschweißt. Talers Aufgabe war es, diesen so lange zu kippen, heben, senken, drehen und sonst zu bewegen,*

*bis die Projektion in der richtigen Position war, und die Fixpunkte auf dem Bild mit denen auf dem Plan übereinstimmten.* [Device can be tilted and rotated in all directions.]

*In der Durchgangstür zur Dunkelkammer befand sich eine quadratische Öffnung, die mit einem dünnen schwarzen Blech verdeckt war, in dessen Mitte sich ein kleines Loch befand. Da mussten die Lichtstrahlen aus dem Negativ hindurch. Im nächsten Raum projizierten sie ein Bild auf das Millimeterpapier mit dem Gartengrundriss.* [Description of pinhole camera with projection screen on millimeter paper.]

*Dort drüben stand Knupp und rief Taler mit wachsender Gereiztheit seine Anweisungen zu: „Links, links, links, halt! Nach vorne kippen. Zu viel, zu viel. Nein, mehr.“ (...)* [Protagonists are adjusting negative.]

*Das Negativ, das sie auf diese vorsintflutliche Art zu projizieren versuchten, stammte von dem legendären elften Oktober neunzehneinundneunzig. Es war eine Ansicht des Gartens, und weil eine Camera obscura Bilder an die Wand warf, die von keinem Objektiv verfälscht waren, sollte es möglich sein, die Punkte auf dem Plan mit den Punkten auf dem Foto in Übereinstimmung zu bringen.* [Projection of garden pictures using Camera obscura.]

*Sobald dies gelungen war, konnte man alle Objekte des Fotos exakt auf den Plan übertragen, indem man ihre Konturen nachzog. Wenn man dann den gleichen Vorgang mit einer heutigen Fotografie vom gleichen Standpunkt aus wiederholte, hatte man die Veränderungen, die in den einundzwanzig Jahren geschehen waren. Erst danach konnte die Detailarbeit beginnen. (...)* [Retracing old objects from images onto plan.]

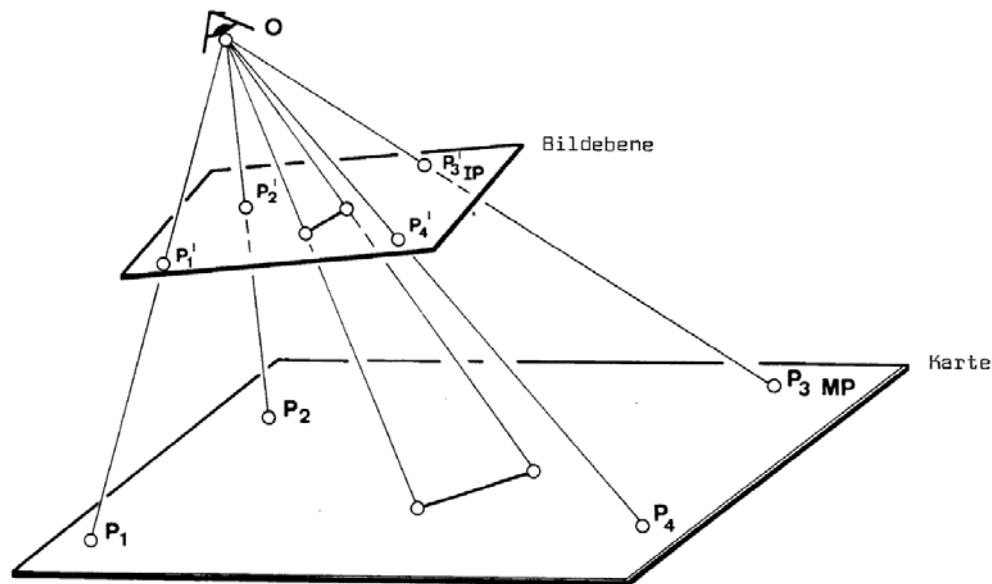
*Bald hatten sie das Negativ in der gewünschten Stellung. (...)*

*Der Garten des elften Oktober neunzehnhunderteinundneunzig fügte sich exakt in den Grundriss, den er so mühevoll gezeichnet hatte. (...)*

*Bis spät in die Nacht übertrug Peter Taler unter den euphorischen Anweisungen des alten Mannes alle Pflanzen, Gartenmöbel und Gegenstände auf den Plan.* [Results are perfect!]

### **2.3. Reconstruction of Trees**

Taler's intention was to reconstruct the garden and the surroundings in full 3D. Until now, the two surveyors could only reconstruct the ground plan. In order to avoid complex 3D methods for the reconstruction of trees, a simple try-and-error-based method was developed: The surveyors simply tried to recreate the geometrical configuration of the historic images by placing a digital camera in the garden and by comparing the old image with the current display window. Once the correct place was found, they placed a sight rod next to the tree and took a picture. This time a computer was used in order to overlay the new image including the sight rod with the old rod. By doing so, the dimensions of the old trees could be measured with a reasonable precision. Suter again describes this method in a linear way, this time with no further atmospheric elements.



**Figure 3.** Projective transformation or collineation (after Gruen, 1985).

*Es ging darum, den Kamerastandort von damals herauszufinden. Sie hatten die Leica auf das Stativ montiert und versuchten, das Bild im Sucher mit dem auf dem alten Foto in Übereinstimmung zu bringen. [Setting up the camera in the garden, comparing with old image.]*

*Der Vorgang war mindestens so knifflig wie die Arbeit in der Camera obscura. Wenn die Fixpunkte am linken Bildrand stimmten, waren sie am rechten nicht richtig; wenn es unten aufging, war es oben verrutscht. [Matching the two images is tricky.]*

*Sie hatten auf der Höhe des Stammes auf beiden Seiten des Buschs einen Fluchtstab aufgestellt, um für die Rekonstruktion einen Maßstab zu erhalten, und schossen Dutzende von Fotos. [Using the sight rod as a scale bar.]*

*Peter Taler lud die Ausbeute auf den Computer und sortierte die besten aus. Diese überlagerte er in Bernoullis Programm mit dem digitalisierten alten Bild, bis sie eines gefunden hatten, das genau passte. Auf diese Weise gingen sie auch mit den Fotos aus den anderen Himmelsrichtungen vor. [Overlay of old and new images in computer.]*

### 3. Reconstructing the Spatial Setting from Factual Information in Suter's Novel

When reading a book, the reader usually tries to imagine the figures as well as the spatial setting out of the text of the novel. It would now be interesting to analyze the text in order to find out which locations and spatial topo-

gies could be extracted without any ambiguities out of the novel. As a proof-of-concept, the findings could be symbolized and visualized cartographically in 2D and even in 3D. Such models could serve for further analysis of the text by literary specialists or for a future film project. These questions stood at the beginning of a Bachelor's thesis project at ETH Zurich, carried out by J. Burgermeister in the spring semester 2013.

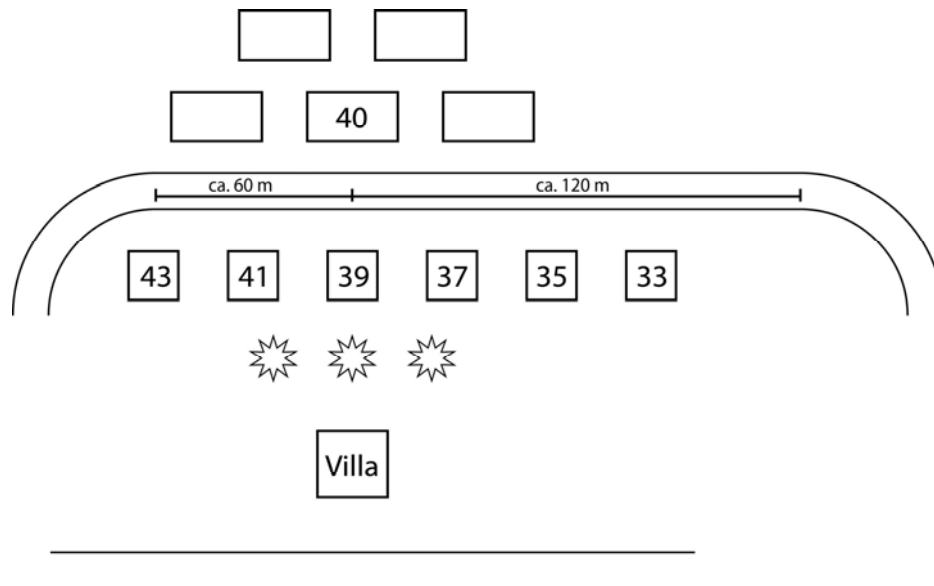
Mapping literary settings is currently an evolving discipline in literary sciences which can be seen in the broader framework of digital humanities. Graphical depictions have been used for a long time, such as the map of Scotland with the settings of Walter Scott's novels, published by Sharp (1904). Authors have even used maps or sketches for planning the settings of their novel: Friedrich Dürrenmatt has drawn a detailed sketch map of the village of Konolfingen for his oeuvre "Stoffe" (NB, 2013).

Extracting spatial information out of fictional texts is also one of the major aims of the Swiss National Science Foundation funded project "A Literary Atlas of Europe", carried out at ETH Zurich since 2006. Reuschel et al. (2012) give an overview of the detailed taxonomy used for the description of such places in novels and novellas. One main question is about the relation between the textual space and the so-called geospace (real world). The authors distinguish between imported settings in real places, transformed settings in modified real places, invented settings within familiar geographic reality, and imagined settings with no relation to the real geospace.

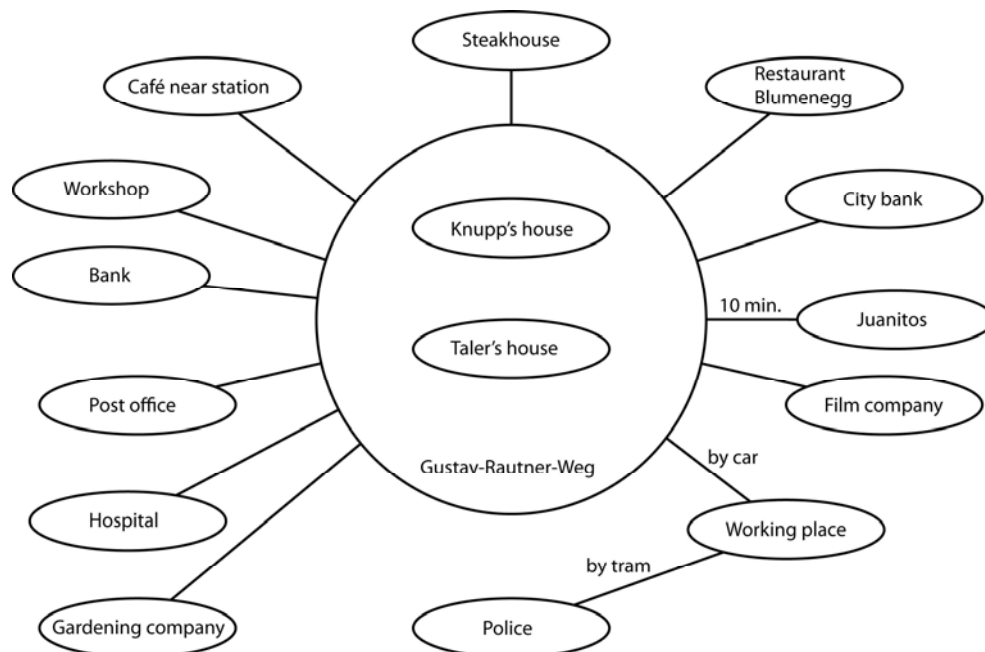
As described earlier, Suter chose a typical residential area as a setting for his novel "Die Zeit, die Zeit", most probably in a medium-sized Swiss town; it may therefore be considered an invented setting. After the first reading, it was possible to draw a first sketch of the neighbourhood around the buildings where the two protagonists Taler and Knupp live (*Figure 4*).

There are several other secondary settings in the novel, for instance the office of protagonist Taler, a police station, a restaurant etc. They are of secondary importance, and only in very rare cases, information about their topological and geometrical (distances) relation is given. *Figure 5* shows a schematic representation of all settings.

In a next step, the main setting in the neighbourhood could be detailed more by extracting all possible information with spatial reference and in various levels of detail. In this inventory, it is also indicated whether the information is factual (directly based on information from the novel), interpreted (out of other facts) or plausible (by common sense). *Table 1* shows an example of all geo-referenced information which can be extracted from the novel. The colours represent the quality or type of information (factual, interpreted, plausible).



**Figure 4.** Main setting of the novel with houses where the protagonists live: Knupp in No. 39 and Taler in No. 40.



**Figure 4.** Schematic representation of all settings.



House of Taler, Gustav-Rautner-Weg 40				
Object	No.	Position	Dimension	Color
House	1	120 m from curve at left, 60 m from curve at right	3 floors	
Parking lot	4	vor dem Haus, an der Strasse	Size of car	Asphalt
Parking lot panel	4	Next to parking lot	Size of licence plate	white
Side wall	2	side	3 floors, depth: 1 flat	Washed-out concrete
Front	2	In front, behind	3 floors, largeness of 1 flat	Beige plastering
Roof	1	On top	Size of groundplan of 1 flat	brown
Flower window	4	At road	Regular window size	Glass

**Table 1.** Example of geo-referenced information which can be extracted from the novel. The colours represent the quality of information (dark blue: factual, medium blue: interpreted, light blue: plausible).

## 4. Discussion, Outlook

The literary chain of perception comes close to a similar chain in Cartography: Idea of author, mental landscape (imagination) of author, definition of literary setting and detailed furnishing, textual implementation, reading and perception process by reader, mental map/imagined landscape of reader. In this paper we have tried to extract information out of Suter's novel as precisely as possible. We showed that inventories with a rather high level of detail can be set up. The last step of this proof-of-concept would be the graphical visualization (2d/3D) of the setting in order to be able to compare it with the original intention of the author and to use it for further purposes like, for instance, a film project.

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